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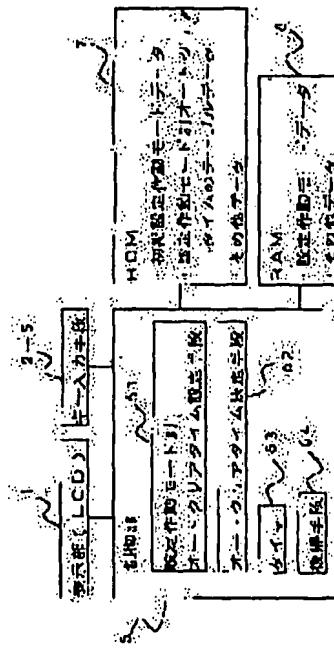
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(54) IMAGE FORMING DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To solve the problem that a complicated set operation mode is cleared soon or miscopying is caused because of the holding of a simple set operation mode since the automatic clearing time of a conventional image forming device is fixed or changed only by user's change of settings.

SOLUTION: Automatic clearing times can be set by setting operation modes that the user set by providing automatic clearing time setting means by the set operation modes, so the time for which a set operation mode that the user feels troublesome to reset becomes long and a set operation mode that the user feels easy to reset and can easily set is cleared in a short time, so favorite automatic clear times can be set.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]**

[Field of the Invention] This invention relates to a copying machine, a laser beam printer, facsimile, etc., especially relates to an autoclear function.

[0002]

[Description of the Prior Art] When using a copying machine conventionally, although a user sets up if needed in exposure density, a scale factor, a paper size, a margin width, frame deleting, etc., if this user ends a job and predetermined time amount (auto clear time) passes, the above-mentioned setup of operation will return to the initialization action mode which registered a setup of operation used most ordinarily automatically. When the next user uses it by carrying out like this, an initial actuation setup can perform. In addition, time amount can be chosen or said auto clear time can also be made into the mode in which a user does not return according to liking.

[0003]

[Problem(s) to be Solved by the Invention] However, unless the auto clear timer passed and it did a complicated setup again once again while having turned over next Page even if it has set up frame deleting, a scale factor, exposure, etc. exquisitely when the auto clear time is a short setup, for example and a user copies a book manuscript, or while having gone to take another book etc., it might be unable to go by the conventional technique.

[0004] Moreover, auto return time amount being a long setup, for example, copying, without the next user noticing this, when the user who was using it before is working by dark exposure and the number of copies of the a large number section, and carrying out futility of a form often occurs.

[0005]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, after actuation of the last of image formation equipment is completed as this 1st invention In the image formation equipment which has the autoclear function which will return the setting operating mode of image formation equipment to an initialization operating mode if predetermined time amount passes A mode auto [classified by setting actuation] clear time setting means by which an auto clear time can be set as a setting operating mode at **, An auto clear time decision means to determine the reset time to an initialization operating mode based on the setting operating mode which the auto clear time and user for said every setting operating mode operated, If said auto clear time passes after actuation of the last of the image formation equipment concerned is completed, the image formation equipment characterized by having the control means which returns the setting operating mode of the image formation equipment concerned to an initialization operating mode will be used.

[0006] As the 2nd invention, said auto clear time decision means uses the image formation equipment of a publication for the 1st invention characterized by making longest time amount into an auto clear time among the auto clear times for every setting operating modes of these, when the setting operating mode which the user operated is plurality.

[0007] As the 3rd invention, said auto clear time decision means uses the image formation equipment of

a publication for the 1st invention characterized by making into an auto clear time time amount set up for a long time than the auto clear time for every setting operating modes of these, when the setting operating mode which the user operated is plurality.

[0008]

[Function] In this 1st invention, since what a user senses that resetting is serious since an auto clear time can be set up for every setting operating mode which the user set up becomes long, the time amount holding a setting operating mode senses that it is easy and an immediately reproducible setting operating mode is cleared for a short time, a setup of the auto clear time according to liking can be performed.

[0009] In this 2nd invention, although the initialization operating mode was operated among the setting operating modes which the user set up, since it returns to an initial operating mode by the longest time amount, even if it is operating two or more easy setup, when it is cleared for a short time and a complicated setup is performed, setting-operation mode is held.

[0010] The time amount which returns to an initial operating mode even when [complicated only at easy operating modes] it is operated since it considers that a setup is difficult when more than one are operated, even if the setting operating mode among the setting operating modes which the user set up in the 3rd invention of this case is respectively cleared by short time amount and returns to an initial operating mode by long time amount becomes long.

[0011]

[Example] The control unit of the image formation equipment which adopts this invention is explained based on drawing 2 - drawing 5. The basic screen first shown in drawing 2 is explained. A display 1 is a LCD display and serves as the touch panel with the display. On this screen, a setup of a scale factor, a cassette and selection of a bypass, a double-sided setup, photograph mode, exposure, etc. can be performed. If the basic tab 111, the variable power tab 131, and the functional tab 151 touch each tab, they will move to the setting screen of the function. The basic guidance display 112 tells a user about information. "it can copy. 1 (sheet every)" etc. is displayed. The setting display 120 displays a current setup "100% and an automatic form" etc. Except that as which others were chosen by setup, as it is all over drawing, a mask is covered and the current setting operating mode is intelligible. this screen -- scale-factor: -- 100%, the 1st KASSETO to which A4 width was set by copy number-of-sheets: 1 sheet and automatic form selection is chosen, and the strength of middle has exposure mostly. Photograph mode etc. is not chosen.

[0012] The ten key 2, the stop/clear key 3, the all clear key 4, and the start key 5 are formed in the right-hand side in drawing. Said ten key 2 is used for numerical inputs, such as copy number of sheets, said stop / clear key 3 are keys which cancel the last input, and said all clear key is a key which returns the set-up setting operating mode to an initialization operating mode by one-touch. Said start key 5 is used as keys, such as decision in the mode, as an initiation key of a copy.

[0013] If the above-mentioned variable power tab 131 is chosen, it will change to the variable power screen shown in drawing 3. The variable power guidance display 132 displays information, such as "please set up a scale factor", on a user. It returns to a basic screen, returning the rate of variable power inputted when the discharge key 133 was chosen to 100% of the early rate of variable power. The fixed variable power key 134 is a key to which, as for modification of B4->A4, modification of A4->A3, A5->A4, and B5->B4 makes a change of A3->A4 and A4R->A5 and B4->B5 for 141% of fixed variable power 115% 81% 70% based on manuscript size and a paper size, respectively, as for modification of B4->A3, B5->A4, and B5->A4. If the 50% key 135 and the 200% key 136 are touched, respectively, they will become 50% and 200% of variable power setup. The variable power setting display 137 shows the current rate of variable power. If it continues pushing whether the expansion key 138 and the contraction key 139 are touched, respectively, a scale factor is changeable by 1% unit of scale factors. It returns to a basic screen, with the rate of variable power held inputted when the setting key 140 was chosen.

[0014] If the above-mentioned functional tab 151 is chosen next, it will change to the function selection screen shown in drawing 4. The functional guidance display 152 displays information, such as "please choose a function", on a user. The double-sided key 153 which is a key which chooses a function as the

bottom of it, a split key 154, the margin key 155, the OHP interleaving paper key 156, the sheet key 157, the frame deleting key 158, etc. are put in order. If said double-sided key 153 is chosen, it will become double-sided copy mode, and if said split key 154 is chosen, A3 manuscript will be divided and copied to two sheets of A4 forms, for example. If said margin key 155 is chosen, it will change to a screen (not shown) detailed to the pan, and a setup of a margin will be attained. If said OHP interleaving paper key is chosen, feeding to it paper and copying an OHP sheet from the manual paper feed section, paper will be fed to a form from other cassettes, and it will consider as interleaving paper. If said sheet key is chosen, it will change to a screen (not shown) detailed to the pan, and a setup of an OMOTE cover, a URA cover, a batch form, etc. will be attained.

[0015] If said frame deleting key 158 is chosen, it will change to the frame deleting mode selection screen 159 detailed to a pan as shown in drawing 5. It displays "it is frame deleting copy mode", "please choose the class of manuscript", etc. on the frame deleting mode guidance display 1591. If the returning key 1592 is chosen, it will return to said function selection screen 15. The frame deleting width-of-face selection key 1593 performs frame deleting of the selected width of face. When the sheet frame deleting key 1594 is chosen, it is a deed about the frame deleting of the form circumference. Selection of the book frame deleting 1595 performs frame deleting the circumference of a form, and near the center of a manuscript longitudinal direction. If the arbitration setting frame deleting key 1596 is chosen, it will change to the detailed screen (not shown), and the fine frame deleting which carried out the numerical input will also become possible.

[0016] In addition, if a tab 161 is chosen, it will change to screens (not shown), such as a password input screen, and a department administration screen, a tariff.

[0017] Thus, a setting operating mode has the very complicated various setting operating modes which switch screens, such as a margin, and sheet mode, frame deleting mode, one after another, and perform a numerical input and a fine setup from the easy thing which can be set up only by tampering with a little scale factor, copy number of sheets, exposure, etc. This invention can set up a suitable auto clear [a user] time for every setting operating modes of these.

[0018] The block diagram of the image formation equipment which adopts this invention is shown in drawing 1. A display 1 and a key input means (2-5) are the key inputs of the LCD display and ten key which were mentioned above, a start key, etc. The control section 6 consists of those to which it consists of the auto [according to setting operating mode] clear time setting means 61, an auto clear time decision means 62, a timer 63, a return means 64, etc., or each carries out an equivalent operation. Table data, other programs, etc. which determined beforehand the relation between initialization operating mode data or an auto [according to setting operating mode] clear time are stored in ROM7. The data of the present setting operating mode, the setting data of image formation equipment, etc. are stored in RAM8.

[0019] Said auto [according to setting operating mode] clear time setting means 61 which is the description part of this invention is explained based on drawing 6. This drawing is a screen which sets up the auto clear time according to setting operating mode. Although the tab of a basic screen was chosen and it goes into this screen in this example, the hard switch of dedication may be formed. It displays "please set up time amount when each function is chosen, until it carries out an auto return" etc. on the auto clear time setting screen guidance display 162 of this screen. As for the auto clear time setting screen-display section 163, current indicates which screen it is. The auto [according to setting operating mode] clear time setting key 163 can change the reset time to the initial operating mode after operating the selected operating mode. Complicated things, such as frame deleting mode and OHP interleaving paper mode, have the left-hand side of each key from easy things, such as a scale factor and the number of copies, in setting-operation mode, and the auto [according to setting operating mode] clear time is displayed on right-hand side. A user chooses one of said auto [according to setting operating mode] clear time setting keys 163 on this screen, if the UP key 167 is pressed, time amount will go up one by one, and if the DOWN key 168 is pressed, time amount will descend one by one. The front function key 165 and the following function key 166 change to the screen which performs other user setup by pushing these. Storage maintenance of these set-up auto [according to setting operating

mode] clear times is carried out into said RAM8.

[0020] This 2nd invention and the 3rd invention are explained below. When a user chooses a single setting operating mode and carries out, the auto return of these auto [according to setting operating mode] clear times set up respectively is carried out in an auto clear time as it is, but since an auto clear time in case two or more setting operating modes are chosen has two or more auto clear times, it is invention about an art in this case.

[0021]

[Table 1]

	倍率	被写体倍率	カセット	画面	分割	マージ	複数枚	シート	OHP用
A0 初期設定作動モードデータ	100%1枚	0.0	1.0倍	1.0x	1.0x	1.0x	1.0x	1.0x	1.0x
A1 設定作動モードデータ	100%1枚	7/13倍	2.0倍	1.0x	1.0x	1.0x	1.0x	1.0x	1.0x
日 曝ヒロ速モード	0 0	1 1	0 0	0 0	0 0	1 1	0 0	0 0	0 0
ヒロ速モードクリアタイム	100 400	0.0	0.0	0.0	1.0x	1.0x	1.0x	1.0x	1.0x
現在の各設定作動モード	0 0	0 0	0 0	0 0	1.0x	1.0x	1.0x	1.0x	1.0x
T オートクリアタイム	0 0	0.0	0.0	0 0	0 0	1.0x	0 0	0 0	0 0
T MAX				120	8				

[0022] It determines, when the time amount by which the auto [according to setting operating mode] clear time t_0 is set up as the 2nd invention shows to Table 1 first, an auto [of each setting operating mode] clear time is called for exposure, a cassette, and frame deleting unlike an initialization operating mode at this example, and all the setting operating mode finally returns to an initialization operating mode chooses the longest time amount among auto [according to these setting operating mode] clear times. In this case, after 120 seconds, an auto return is carried out to an initialization operating mode.

[0023]

[Table 2]

	倍率	被写体倍率	カセット	画面	分割	マージ	複数枚	シート	OHP用
A0 初期設定作動モードデータ	100%1枚	0.0	1.0倍	1.0x	1.0x	1.0x	1.0x	1.0x	1.0x
A1 設定作動モードデータ	115%1枚	7/13倍	2.0倍	1.0x	1.0x	1.0x	1.0x	1.0x	1.0x
日 曝ヒロ速モード	1 0	1 1	0 0	0 0	0 0	1 1	0 0	0 0	0 0
ヒロ速モードクリアタイム	400 100	0.0	0.0	0.0	1.0x	1.0x	1.0x	1.0x	1.0x
T 現在の各設定作動モード	400 0	0.0	0.0	0 0	0 0	1.0x	0 0	0 0	0 0
T オートクリアタイム				300	8				
ET									

[0024] And by another 3rd invention, as shown in Table 2, the auto [according to setting operating mode] clear time t_0 is set up, and in this example, unlike easy initialization operating modes, such as a scale factor, the number of copies, exposure, and a cassette, the auto clear time of each setting operating mode is called, and it decides on the time amount which it calculates by applying it to a predetermined function, and returns to an initialization operating mode. Said functions used here are auto clearance time = $T_1 + 0.5 \times T_2 + 0.3 \times T_3 + 0.2 \times T$ four and ($T_1 > T_2 > T_3 > T$ four). In addition, what kind of function is used should just determine suitably. In this case, after 138 seconds, an auto return is carried out to an initialization operating mode.

[0025]

[Effect of the Invention] If this 1st invention is used, since an auto clear time can be set up for every setting operating mode which the user set up, what a user senses that resetting is serious can perform a setup of ** to which the time amount holding a setting operating mode becomes long, and an auto [according to liking] clear time since it senses that it is easy and an immediately reproducible setting operating mode is cleared for a short time.

[0026] Since it will return to an initial operating mode by the longest time amount although the initialization operating mode was operated among the setting operating modes which the user set up if this 2nd invention is used, even if it is operating two or more easy setup, when it is cleared for a short time and a complicated setup is performed, setting-operation mode is held.

[0027] The time amount which returns to an initial operating mode even when [complicated only at easy operating modes] it is operated since it considers that a setup is difficult when more than one are operated, even if the setting operating mode among the setting operating modes which the user set up when using the 3rd invention of this case is respectively cleared by short time amount and returns to an initial operating mode by long time amount becomes long.

[0028] Although these auto clear times are considering as the time amount after the actuation before image formation equipment is completed, they are good also as time amount after setting actuation is completed. Moreover, except an auto clear time, even if it applies to auto shutoff time amount (time amount until it goes into the power-saving mode, such as the fixing power source OFF and Display OFF, automatically), sufficient effectiveness is acquired.

[Translation done.]